

**QUALITY CONTROL
AND INDEPENDENT TECHNICAL
REVIEW PLAN**

**Middle Chesapeake Bay Island
Ecosystem Restoration Project**

Maryland Port Administration

General Investigation – Feasibility Study

May 2007
QUALITY CONTROL AND INDEPENDENT TECHNICAL REVIEW PLAN

1.0 PURPOSE

This plan presents the process that assures quality products for the Middle Chesapeake Bay Island Ecosystem Restoration Project (Mid-Bay) Study, a General Investigation (GI) feasibility study. This quality control (QC) and independent technical review (ITR) plan, herein referenced as the “review plan”, defines the responsibilities and roles of each member assigned to the study and the technical review team.

The product to be reviewed by the technical review team is the integrated feasibility report, meaning that all required National Environmental Policy Act (NEPA) documentation is included. Under the provisions of U.S. Army Corps of Engineers (USACE) policy regarding peer review as detailed in Engineering Circular (EC) 1105-2-408 dated May 31, 2005, the ITR will be conducted by specialists from organizations outside of the Baltimore District, which is currently responsible for the study. Independent technical review will be conducted on all decision documents approved at the Headquarters USACE level and will be separate from the technical production of the project. This plan is an addendum to, and is by reference, a part of the project management plan which scopes the effort for this feasibility study.

2.0 APPLICABILITY

This document provides the quality control plan for the feasibility study. It identifies the quality control processes and independent technical review for all work to be conducted under this study authority, including in-house, sponsor and contract work.

3.0 REFERENCES

EC 1105-2-407 “Planning Models Improvement Program: Model Certification” (May 31, 2005)
EC 1105-2-408 “Peer Review of Decision Documents” (May 31, 2005)
EC 1105-2-409 “Planning in a Collaborative Environment” (May 31, 2005)
ER 1105-2-100 “Planning Guidance Notebook & Appendices”

4.0 GENERAL PROJECT DESCRIPTION

The study is being conducted under the Eastern Shore, Maryland and Delaware authority - resolution of the U.S. Senate Committee on Environment and Public Works, dated June 5, 1997. This authority states:

“Resolved by the Committee on Environment and Public Works of the United States Senate, That the Secretary of the Army is requested to

review the report of the Chief of Engineers on the Chesapeake Bay, Maryland and Virginia, published as House Document 176, Eighty-eighth Congress, First Session, and other pertinent reports with a view to conducting watershed management studies, in cooperation with other Federal agencies, the State of Maryland and the State of Delaware, their political subdivisions and agencies and instrumentalities thereof, of water resources improvements in the interest of navigation, flood control, hurricane protection, erosion control, environmental restoration, wetlands protection, and other allied purposes in watersheds of the Eastern Shore, Maryland and Delaware.”

The Baltimore District conducted a reconnaissance study of the Maryland and Delaware portions of the Delmarva Peninsula lying within the Chesapeake Bay watershed under the authority of Section 905(b) of the Water Resources Development Act of 1996. Subsequently, a Section 905(b) Analysis (dated 31 July 1999) was prepared that assessed the water resources problems and needs of the watershed areas.

The legislative authority for this feasibility study allows for the study of a project in the interest of ecosystem restoration and navigation by beneficially using dredged material. The study represents a comprehensive approach to dredged material management based on the Baltimore Harbor Dredged Material Management Plan (DMMP), dated August 2005. The recommended plan will restore critically important remote island habitat in the middle Chesapeake Bay. This area is very important for many commercially important species and serves as a vital link in the Atlantic flyway for migrating birds. The plan will also provide over 90 million cubic yards of dredged material placement that will serve to provide safe and efficient navigation to the Port of Baltimore for approximately 30 years.

The study area is defined as the eastern half of Chesapeake Bay from the Chester River in the north to the Maryland/Virginia state line in the south. The area contains over 100 named islands from which the location of the recommended plan was selected. The islands were screened based on various environmental and engineering considerations. In addition to the size and location of the island restoration, the recommended plan includes a defined ratio of wetland, upland, mudflat and open water habitats. The engineering constructability and cost has been measured against the anticipated environmental benefit in order to develop and optimize the recommended plan.

The project team is comprised of representatives from USACE's Baltimore District, as well as the project's non-federal sponsor, the Maryland Port Administration (MPA). The Baltimore District team members include representatives from Planning, Engineering, Real Estate, Construction, Contracting, and Programs & Project Management Divisions, as well as the Office of Counsel and Resource Management Office. Other non-federal interests include representatives of the State and Federal agencies involved in dredging or the Chesapeake Bay ecosystem. The agencies and individuals involved are detailed in the PMP and the project report. The interested agencies include, but are not limited to, the Maryland Departments of Environment and Natural Resources, the Maryland Geological Survey, University of Maryland, EPA, NOAA, USFWS, etc. These agencies have been involved in dredged material and habitat issues for many years as part of the existing and ongoing State of Maryland Dredged Material Management Program.

5.0 REVIEW REQUIREMENTS

Initial quality control (QC) review will be handled within the Corps section or branch office performing the work or by staff in the corresponding sponsor jurisdiction when the work involves in-kind services. Additional QC will be performed by the project team during the course of completing the integrated feasibility study. The detailed checks of computations and methodology should be performed at the District level, and the processes for this level of review are well established.

Pursuant to EC 1105-2-408, item 2c(2), any models used in the preparation of decision documents covered by that circular will be reviewed in accordance with EC 1105-2-407, *Planning Models Improvement Program: Model Certification*, and are not subject to the requirements of the [1105-2-408] circular. The uses and applications of models in individual studies that lead to the preparation of decision documents will be reviewed in accordance with its requirements by the related discipline(s) as part of this technical review. Certification of the plan benefit spread sheet model will be performed as part of the ITR process.

Pursuant to EC 1105-2-408, because this study leads to a decision document requiring authorization by Congress, as well as recent guidance, ITR was performed by Philadelphia District. Since the ITR was done prior to the most recent guidance establishing the Planning Center of Expertise (PCX) for Environmental Restoration (National Ecosystem Planning) Projects, the ITR review process and the review itself is to be reviewed by the PCX. Dr. Dave Vigh (CEMVD-RB-T) of the appointed PCX will assign the team.

Due to the magnitude and complexity of this project, it is understood that an external peer review (EPR) beyond the ITR should be conducted (see Section 9). The project team included and utilized many subject matter experts beyond the Corps and the sponsor to help direct plan formulation and recommendation. The PCX will review the EPR plan and the make up and input of the external reviewers to determine if it sufficient to address the need for EPR on this project. Once again, the EPR as implemented was accomplished prior to the requirement for this level of scrutiny, due to the visibility and importance of this project.

6.0 REVIEW PROCESS

This study began with execution of a feasibility cost-sharing agreement in November 2002, prior to the requirement for ITR. The team recognized the importance of the project and the likelihood that ITR would be expected even if it weren't required. The study team arranged for ITR of the draft report to be performed by the Philadelphia District (NAP). NAP had already done ITR for the Poplar Island Expansion Project, which is also a beneficial use of dredged material, island ecosystem restoration project for the Port of Baltimore. Since the ITR was envisioned and carried out toward the end of the study process, the prior process involving in-house independent technical review was utilized for the study up to that point. Since that time, a feasibility review conference has been held, the report has been sent out for public review, and finalization of the

Planning Guidance Memorandum (PGM) is underway. As discussed above the PCX is reviewing the quality control procedures to date prior to the scheduled Civil Works Review Board meeting on July 19, 2007.

7.0 REVIEW COST

The cost of the ITR will be negotiated between the Baltimore District and the PCX. It is assumed that documents to be reviewed will be transmitted electronically to the assigned ITR members. Comments will be recorded using e-mail or another suitable format that will be coordinated with the ITR member. All comments will be provided electronically to the Baltimore District study manager. It is also assumed that the ITR team will be working virtually.

8.0 REVIEW SCHEDULE

Development of a preliminary schedule for this environmental restoration study was accomplished during development of the PMP. Since that time, all milestones have been accomplished up through public review. The remaining tasks include completion of the ITR process, approval of the PGM, submission of the Civil Works Review Board package, and submission of the final report. Final PGM, CWRB material and final report submission date to NAD is May 23, 2007 to NAD and June 19, 2007 to HQUSACE. The ITR, Model and EPR certifications are required by the HQUSACE submission in June.

9.0 PROJECT RISK

A project risk assessment was conducted by Baltimore District's PDT and the PCX. For this exercise, an assessment was made of the risk associated with this project based upon five factors and the project was rated quantitatively among five levels of project risk, ranging from low to high (risk score class). All five factors were weighted equally and are described further below. The rater considered previous District project experiences when making this analysis. No attempt was made to tie this risk to a national scale of rating; however, it is assumed that the PCX did bring this perspective to their assessment of the rating. Note that the risk is shown here formally, but is based on conversations with the PCX and informal team coordination.

- Risk inherent in project complexity deals with the potential that the project will not realize its anticipated benefits after it is ultimately constructed.
- Customer expectations risk is a measure of the level of expectations of the sponsor and the risk that we may not be able to meet them.
- The project schedule and cost were assessed a low degree of risk if they both remained flexible, and a high degree of risk if the project schedule and cost were to become fixed.
- Staff technical experience was assessed as a low degree of risk if the staff had a high level of ecosystem restoration experience, and a high degree of risk if the staff had minimal experience.

- The impact of project failure and the subsequent consequences is determined based on preliminary future, without project scenarios in conjunction with sponsor and technical team member input.

The score for the risk items were summed and the average value of the risk assessment scores was used to determine overall project risk level (Table 9.1). Based upon this analysis by the Corps study manager, the project is projected to carry a medium level of risk with a score of 3.6. The results of the evaluation are tabulated as follows:

Table 9.1 Quality Control/Review Plan Score Guide

Project Risk Item	Risk Assessment Score (Low Degree to High Degree)						Score
	Low		Medium		High		
Project Complexity	1	2	3	4	5		4
Customer Expectations	1	2	3	4	5		3
Product Schedule/Cost	1	2	3	4	5		3
Staff Technical Experience	1	2	3	4	5		3
Failure Impact and Consequences	1	2	3	4	5		5
Average Project Risk Assessment Score					➔		3.6 Medium Risk

Although the project is not rated as high risk, and much of this is due to the immense experience of the team and the sponsor based on the previous Poplar Island project, it is being treated for review purposes as a high risk project. That is, EPR is required. The reason for this is because the project is predicted to create substantial benefits, will require over 30 years to implement, and has a total cost of well over \$1 billion.

10.0 REVIEW PLAN

The components of the review plan were developed pursuant to the requirements of EC 1105-2-408.

10.1 Team Information

The decision document that is the ultimate focus of the peer review process is the integrated feasibility report, which includes an environmental impact statement. The purpose of the decision document is to carry out the approval process leading to project authorization and project implementation.

The current project team is listed below. This list provides the points of contact of Baltimore District (NAB) team members who are available to answer specific technical questions as part of

the review process. The list also provides the names and organizations of the non-federal sponsors and participating outside entities.

District Project Team Members:

Kevin Brennan, CENAB-PP-C Project Manager	Gregg Bass, CENAB-EN-GH Civil Engineering Technician
Stacey Blersch, CENAB-PL Study Team Leader	Angie Sowers, CENAB-PL Environmental Specialist
Tom Myrah, CENAB-EN-WC Design Manager	Craig Homesley, CENAB-RE-C Real Estate Specialist
Barry Cortright, CENAB-EN-WE Civil Engineer	Luan Ngo, CENAB-EN-C Cost Estimator
Karen Nook, CENAD-EN-GH Civil Engineer	Mike Snyder, CENAB-EN-GG Civil Engineer

Sponsor Team Members

Steve Storms Project Manager Maryland Port Administration (410) 631-1102	Doug Redmond Frank Hamons Chief, Harbor Development Maryland Port Administration (410) 631-1102
John Vasina Program Analyst Maryland Port Administration (410) 631-1102	

Independent Technical Review (ITR) Team

ITR was conducted by the Philadelphia District, US Army Corps of Engineers. The team members were as follows.

Hydraulic Engineering Civil Engineering (dredged material manager) Geotechnical Engineering Environmental	Randall Wise, P.E. Walter Sgrignuoli Daniel Kelly, P.E. Beth Bandreth (Regional Technical Specialist)
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Plan Formulation
Economics
Cost Estimating

Jane Jablonski
Robert Selsor
Tom Munyan

10.2 Scientific Information

The formulation and analysis of this project included the latest in dredged material management techniques learned from the Baltimore District's experience with the restoration of Poplar Island, which has won many environmental awards and is internationally recognized. The formulation and evaluation of the potential benefits associated with the Mid-Bay Island project was conducted using the concept of Island Community Units (ICU). ICU calculations are based on projected usage of various habitat types by various guilds of fish and wildlife species. This spread sheet model technique is to be certified during the ITR process. This technique was devised for this effort and has been used successfully for the Poplar Island Expansion project, which has been approved and submitted to Congress for authorization.

10.3 Timing

The ITR process has begun. NAP has conducted ITR on the draft report. EPR has been conducted and model certification is underway. The PCX for ecosystem restoration, MVD, is currently reviewing the ITR and EPR to determine if it has been satisfactory. Again, this project had been grandfathered, but guidance dated March 30, 2007 removed grandfathered status from all projects. The review process is to be completed before June 19, 2007.

10.4 External Peer Review Process

EPR was conducted for this study not as an end of the pipe process, but rather it was nested into the process. The peer experts were surveyed for their input to the model and formulation process and all decisions along the way that effected island size, placement, function or make up were reviewed and approved by the panels of experts. The Baltimore District appreciates that magnitude and importance of this project and has made every effort to conduct the study in the most transparent and inclusive way possible. The experts who worked with the study team are considered the foremost experts on Chesapeake Bay habitats and processes. A separate EPR plan with the credentials of the study participants and reviewers has been developed.

10.5 Public Comment

Public involvement has continued throughout the feasibility study since its inception in 2002 through efforts of this study and the State's ongoing DMMP process and standing committees. Public involvement on this project has been completed and is detailed in the final report. The recommended plan has been presented to the public and has been reviewed by all interested agencies with not significant comment.

10.6 ITR Reviewers

ITR has been completed. MVD is currently reviewing the ITR qualifications and process to insure that it met the intent of the applicable guidance on ITR. The M-CACES cost estimate is being reviewed by the USACE center of expertise in Walla Walla District.

10.7 External Peer Review Selection

As stated above, EPR has been conducted for this study. The PCX is determining if the EPR has been sufficient to meet the intent of the relevant guidance.